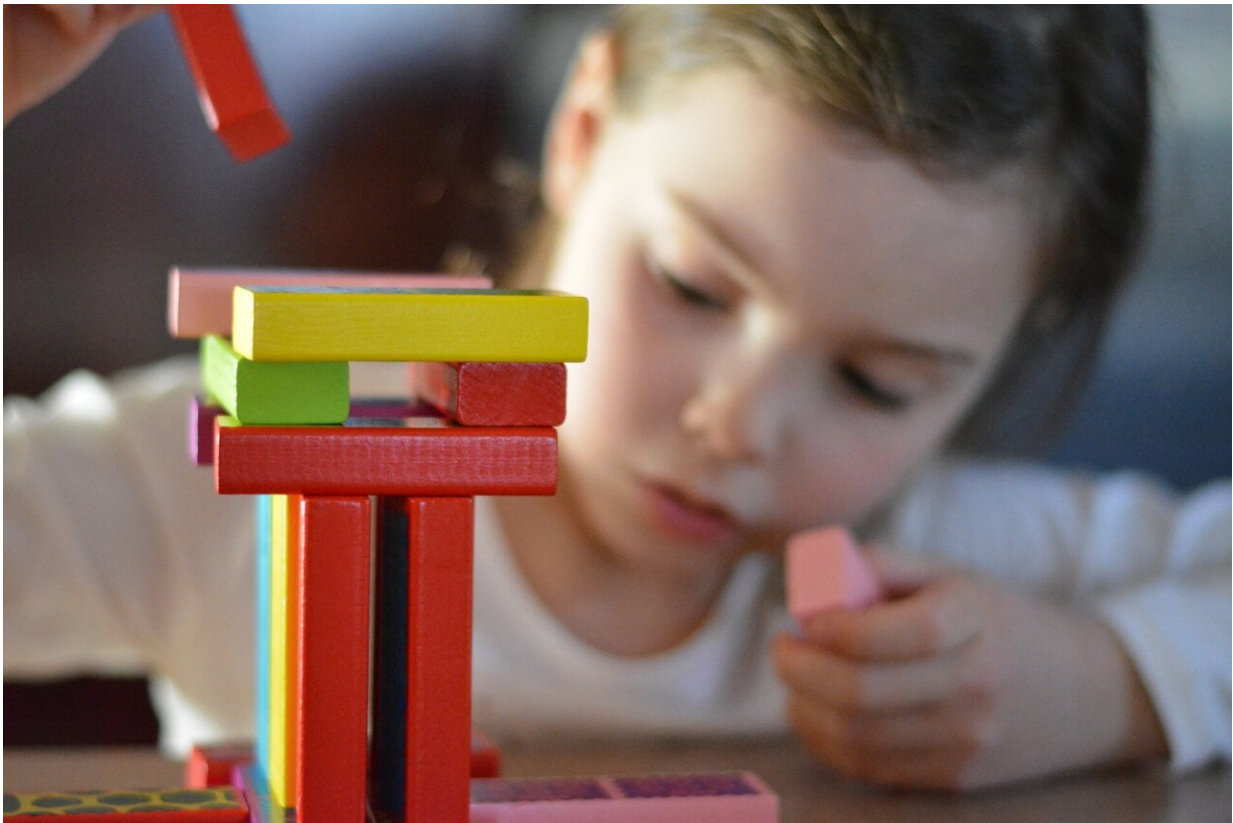


Early drawing and building skills linked to enhanced education and behavior in children

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Fine motor skills in young children are linked to better GCSE scores and fewer behavioral problems in childhood and adolescence, according to a [study](#) from the University of Surrey and Birkbeck, University of

London.

The authors of the study, published in *Biological Psychiatry*, suggest that preschool [fine motor skills](#), including drawing, folding paper and block building, may play an important role in the pathway between infancy and later educational and behavioral outcomes in primary and secondary school.

The study showed that fine motor skills were associated with higher GCSE grades at age 16. Lower fine motor skills during the preschool years were associated with more [behavioral problems](#) and more ADHD symptoms during the primary and [secondary school](#) years. These links still held when socioeconomic factors, including parent qualifications and employment, were taken into account.

Professor Angelica Ronald of the University of Surrey, the senior author of the study, said, "Activities that fall under fine motor skill development, such as block building and drawing, may often be perceived as simply 'play' by parents, caregivers and education providers."

"But, our study suggests that the development of fine motor skills is part of the pathway that leads to educational outcomes and behavior later on. Parents are sometimes provided with free books for their young children; policymakers should consider supplementing books with blocks or drawing materials."

The study involved over 9,000 [preschool children](#) who were asked to draw, fold paper, and pile up blocks. These skills all require careful manipulation of objects with hands and are referred to as 'fine motor skills.' The children were assessed at ages two, three and four to get a sense of their overall fine motor skills during the preschool period.

The children were then followed up through their childhood and adolescence as part of a longitudinal study, the Twins Early Development Study. The children's GCSE results at age 16 were recorded, as well as their behavior across childhood and adolescence, including traits relating to ADHD.

In a further step, the authors worked with measures of genetic propensity for educational attainment and behavior. These measures of genetic propensity are referred to as polygenic scores. These measures give an indication of a sum of the inherited predisposition for particular traits. Their study reported evidence that the inherited propensity for staying longer in education was associated with better early fine motor skills. The inherited propensity for ADHD was associated with more challenges with preschool fine motor skills.

Aislinn Bowler, the first author of the study, said, "I was surprised by the extent of the results we found. When I set out to do this study, I suspected that early fine motor skills might be important. I was startled to find that fine motor skills have such wide-ranging connections to later outcomes, extending not only into primary school age but into adolescence as well."

The authors are keen to note that further research is needed to ascertain the exact role that fine motor skills play in influencing children's later outcomes. If a causal role was discovered between fine motor skills and later outcomes, it would be important for this to influence [public policy](#) and the Government's Early Years Framework to ensure these were evidence-based.

More information: Aislinn Bowler et al, Phenotypic and Genetic Associations Between Preschool Fine Motor Skills and Later Neurodevelopment, Psychopathology, and Educational Achievement, *Biological Psychiatry* (2023). [DOI: 10.1016/j.biopsych.2023.11.017](https://doi.org/10.1016/j.biopsych.2023.11.017)

Provided by University of Surrey

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